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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,219	09/14/2000	Kei Yoshikawa	04329.2409	9438

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EXAMINER

AHMED, SAMIR ANWAR

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/662,219

Applicant(s)

YOSHIKAWA ET AL.

Examiner

Samir A. Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15,28 and 29 is/are rejected.
- 7) ☒ Claim(s) 43-44 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/07 has been entered.

2. The amendment filed 2/28/07 have been entered and made of record.

3. In response to applicant's amendment filed 2/28/07, the rejection of claim 29 under 35 U.S.C.112 first paragraph is withdrawn.

4. In response to applicant's amendment filed 2/28/07, the objection to the drawings under 37 C.F.R. 1.83(a) is withdrawn.

5. Applicant's arguments filed 2/28/07 have been fully considered but they are not persuasive with regard to claims 15, 28-29 for the following reasons:

6. Applicant alleges, "Yamamoto et al. teaches [,]" (page 11, line 6— page 12, line 6). The Examiner disagrees. Firstly, Yamamoto teaches a correction method to correct a portion of a gate conductor that overlaps a diffusion portion that contacts the gate conductor portion, which reads on the claim as broadly claimed. The Examiner cannot find anywhere in the claim language any definition that the contact portion is an electrically conductive contact, thus Yamamoto anticipates the claim as broadly claimed. Furthermore, Yamamoto teaches correction of contact holes using a correction table (col. 26, lines 18-24). Contact holes as known in the art are metallic contact portions that overlap the wiring pattern on a semiconductor wafer to connect different

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electronic components such as gates of transistors, capacitors etc. Secondly, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., electrically-conductive contact) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant alleges, "To establish a prima facie case [,]" (page 12, lines 11-18). In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the modification would have motivated by conventional requirements such as the range of correction, the availability of software or hardware etc.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 15 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al. (U S Patent 5,879,844).

As to claim 15, Yamamoto discloses a pattern correcting method of a mask for manufacturing a semiconductor device comprising:

extracting a correction portion to be corrected from a mask pattern on the mask [the edges of conductors to be corrected (correction portions) from a mask pattern are extracted by logical product (col. 8, lines 24-37, Fig. 17, 18c, col. 16, lines 40-44)], the correction portion is an overlapped portion where a line portion overlaps a contact portion [the correction portion is an overlapped portion where the edge of the shaded areas of interest in Fig. 18c (line portion) overlaps the dotted areas (contact portion) (Fig. 17, step 12; Fig. 18c, col. 16, lines 44-47)];

obtaining a surrounding environment of the correction portion [the surrounding layout is obtained (col. 9, lines 3-13), the surrounding environment is the surrounding layout of the adjacent pattern of the mask pattern in this case the diffusion layer conductors (Fig 18c, col. 16, lines 44-48)], the surrounding environment of the correction portion is a space width between the line portion and another line portion [Fig 18c shows the adjacent pattern as a parallel conductor (surrounding environment of the correction portion) spaced by a distance (space width) between the edge of the of interest (line portion) and another line portion]; and

giving a variable correction amount to the correction portion in accordance with the surrounding environment [variable correction values based on the distance between the correction portion and its adjacent pattern is obtained from a reference table which

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assigns a correction value to the correction portion based on its distance from the adjacent pattern (Col.16, line 64-col. 1line 10)].

As to claim 28, Yamamoto further discloses wherein the variable correction amount is a line width given to the overlapped portion, and the line width is increased by an integral multiple of a design grid width in accordance with the space width [Table 3 shows a rule-based correction table that shows the correction values that is used to shift the line in the overlapped portion in the direction of its width (i.e. the value is a line width) to increase its width with an integral multiple of a design grid width based on its distance from an adjacent pattern grid (col. 17, lines 1-10)].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U S Patent 5,879,844) as applied to claim 15 above and further in view of Hashimoto et al. Japanese Patent Publication 11-174658 (US Patent 6,060,368 is being used as an official English translation for JP 11-174658 and referencing is being made to the US Patent).

As to claim 29, Yamamoto does not disclose, wherein the width is further increased by half the design grid width.

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Hashimoto discloses a mask pattern correction method for semiconductor devices with gate conductor patterns. Adjacent gate patterns shown in Fig.11 are corrected based on distances from a line gate pattern. A relation between deviation from desired pattern dimension and distances (S) to adjacent pattern is plotted in Fig.10, and a correction table shown in Fig.12 provides the correction amount per edge ($W1/2$, $W2/2$, $W3/3$,...) based on the distance to the adjacent pattern. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Hashimoto's teachings to modify Yamamoto's method by increasing the width by half the design grid width in order to realize highly accurate optical proximity correction (OPC) for the gate patterns.

Allowable Subject Matter

11. Claims 43-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

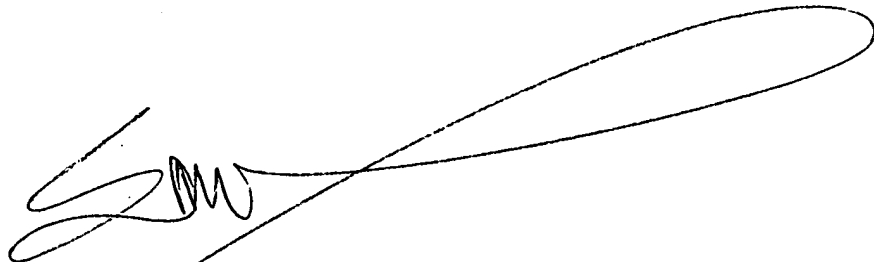
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir A. Ahmed whose telephone number is (571) 272-7413. The examiner can normally be reached on Mon-Fri 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA

A handwritten signature in black ink, appearing to read 'SAMIR AHMED', with a long, sweeping horizontal line extending to the right.

**SAMIR AHMED
PRIMARY EXAMINER**